

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Application Review

Issue Date: **TBD**

Region: Winston-Salem Regional Office
County: Guilford
NC Facility ID: 4100854
Inspector's Name: Robert Barker
Date of Last Inspection: 09/12/2019
Compliance Code: 3 / Compliance - inspection

<p align="center">Facility Data</p> <p>Applicant (Facility's Name): Marsh Furniture Company</p> <p>Facility Address: Marsh Furniture Company 1001 South Centennial Street High Point, NC 27261</p> <p>SIC: 2434 / Wood Kitchen Cabinets NAICS: 33711 / Wood Kitchen Cabinet and Countertop Manufacturing</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>				<p align="center">Permit Applicability (this application only)</p> <p>SIP: 02D: .0504, .0512, .0516, .0521, .0524, .0530, .0614, .1111, .1806</p> <p>NSPS: Dc NESHAP: JJ, DDDDD PSD: VOC PSD Avoidance: n/a NC Toxics: n/a 112(r): n/a Other: n/a</p>																																																			
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<p>Review Engineer: Russell Braswell</p> <p>Review Engineer's Signature: _____ Date: _____</p>					<p align="center">Comments / Recommendations:</p> <p>Issue 03238/T25 Permit Issue Date: TBD Permit Expiration Date: TBD+5 years</p>																																																		

1. Purpose of Application:

a. .19A

Marsh Furniture Company ("MFC"; "the facility") currently operates a factory in Guilford County under Title V Air Quality Permit 03238T24 ("the existing permit"). The existing permit includes a specific condition that requires MFC to submit a Title V permit application per 15A NCAC 02Q .0504 for the completion of the two-step significant application process as outlined in application 4100854.17A and the existing permit. The complete technical review for the 1st step application is included here as Attachment 1. MFC has submitted this permit application in order to complete the two-step application process.

This permit application has been consolidated with the .19B application. See Section 5, below, for discussion specific to this permit application.

b. .19B

The existing permit issued to MFC has an expiration date of March 31, 2020. MFC has submitted this permit application in order to renew the existing permit as required by General Condition K of the existing permit. As part of the permit renewal, references to removed equipment (e.g. the boiler B1) and previous deadlines (e.g. initial compliance testing for MACT 5D) were removed from the permit. In addition, minor corrections to the locations of emission sources were made at MFC's request (see Section 6 for details).

Because the application for permit renewal was received at least six¹ months before the expiration date, the existing permit will remain in effect, regardless of expiration date, until this application approved or denied.

c. .15B

MFC submitted this application to relocate an existing paint spray booth within the facility without affecting the actual or potential emissions from the spray booth. MFC submitted this application as an off-permit change which is allowed under 15A NCAC 02Q .0523 and Section 502(b)(10).

This permit application has been consolidated with the .19B application. See Section 5, below, for discussion specific to this permit application.

2. Facility Description:

According to the most recent inspection report, this facility manufactures wooden kitchen and bathroom cabinets. Activities include woodworking, furniture finishing, and a wood-fired boiler. The facility normally operates eight hours per day, five days per week.

3. Application Chronology:

- September 2, 2015 Application .15B received.

¹ The six-month deadline is given in General Condition K of the existing permit and in 15A NCAC 02Q .0513(b). During the time that MFC was preparing this permit application, the deadline in General Condition K was nine months.

- March 6, 2019 Application .19A received.
- June 26, 2019 Application .19B received.
- January 17, 2020 Applications transferred to Russell Braswell.
- February 12, 2020 An initial draft of the Title V permit and associated application review were sent to DAQ staff (Tom Anderson, Mark Cuilla, Samir Parekh, Robert Barker and Lisa Edwards) and MFC staff (Bruce Braswell). For a summary of comments received, see Attachment 2.

• XXX Public notice

• XXX Permit issued.

4. Title V Permit Modifications Following the Previous Permit Renewal:

- April 7, 2015 Permit T21 issued. This action renewed the Title V permit and removed Toxic Air Pollutant ("TAP") limits from the permit per Session Law 2012-91.
- July 13, 2015 Permit T22 issued. This action was for a minor modification that added additional washing tanks at the facility.
- May 18, 2016 Permit T23 issued. This action was a one-part significant modification that changed emission limits for the wood-fired boiler B1 which were included in the permit under 15A NCAC 02D .1109.
- May 18, 2017 Permit T24 issued. This action was the first part of a two-part significant modification that added the new wood-fired boiler B2 which would eventually replace the older boiler B1.
- July 23, 2019 Permit applicability determination issued for a proposed soil remediation process. NCDAQ determined that no permit modification was necessary regarding this proposal.

5. Current Applications for Permit Modification:

a. 2-Part Significant Modification (.19A)

MFC has previously applied for a 2-part significant modification as allowed by 15A NCAC 02D .0501(b)(2). The application (.17A, received January 31, 2017) and associated Title V permit (T24, issued May 18, 2017) allowed MFC to replace the existing wood-fired boiler (ID No. B1) with a new one.

The existing permit includes a specific condition that requires MFC to submit a 2nd application per 15A NCAC 02Q .0504 after B2 begins operation. MFC has fulfilled that requirement.

Based on the application and most recent inspection, the modification proposed in the .17A application has been implemented, and no changes to the existing permit are necessary (except removal of the specific condition mentioned above).

Attachment 1 to this application review contains NCDAQ's review of the .17A application.

b. 502(b)(10) changes (.15B):

MFC submitted this application for a change to the facility pursuant to 02Q .0523(a)(1). The proposed change involved relocating an existing paint spray booth (ID No. GL-SB11b) from the 3rd floor to the 2nd floor of Building 5. The proposed change will not affect the purpose or amount of emissions from the paint spray booth.

This change has already been implemented in the existing permit, and no further changes are necessary regarding this issue.

6. Changes to the Existing Title V Permit:

- On January 30, 2020, MFC submitted a letter requesting that the following spray booths be moved to New Flat Line 4: SB1, SB2, and ECD-SB13. No change in emissions is expected due to this relocation.
- On July 23, 2019, NCDAQ issued an applicability determination regarding the addition of a soil remediation process. This process has been added to the list of insignificant activities as ID No. I-Rem.
- All other changes made to the Title V permit are summarized below:

Page No.*	Specific Condition No.*	Changes
n/a	Throughout	<ul style="list-style-type: none"> Updated dates and permit numbers. Fixed formatting. Removed references to 02Q .0504 because the Permittee has submitted the required application. Removed references to the boiler B1 because it has been removed from the facility.
n/a	Insignificant Activities	<ul style="list-style-type: none"> Added emission source for soil remediation (ID No. I-Rem) based on applicability determination #3445, issued July 23, 2019.
3 – 7	Permitted Emission Sources	<ul style="list-style-type: none"> Removed the boiler B1 and all associated control devices and references from this table because they have been removed from the facility. Removed references to 02Q .0515 because the effective date has passed. Moved spray booths SB1, SB2, and ECD-SB13 to New Flat Line No. 4 based on letter received January 30, 2020.
13	2.1 B.3	<ul style="list-style-type: none"> Removed references to 02D .0521 because visible emissions do not have a major source threshold and cannot trigger CAM requirements. Removed the section for "justification" because it contained no enforceable conditions. This information can be found in the associated application review.
n/a	2.1 D. (former)	<ul style="list-style-type: none"> Removed this section because the boiler B1 has been removed from the facility.
16	2.1 D.1	<ul style="list-style-type: none"> Added the site-specific minimum voltage and current.
17	2.1 D.3 (current)	<ul style="list-style-type: none"> Changed condition for 02D .0521 to reference the COMS required by MACT Subpart DDDDD.

Page No.*	Specific Condition No.*	Changes
18	2.1 D.4 and 5 (current)	<ul style="list-style-type: none"> Reordered these conditions to match order in NCAC.
18 – 22	2.1 D.5 (current)	<ul style="list-style-type: none"> Rewrote condition for MACT Subpart DDDDD to reflect the Permittee's chosen compliance methods.
n/a	2.1 D.6 (former)	<ul style="list-style-type: none"> Removed this condition because the Permittee has submitted the required application.
33	3	<ul style="list-style-type: none"> Updated General Conditions to v5.3.

* This refers to the current permit unless otherwise stated.

7. Regulatory Overview and Rules Review:

Under the existing permit, MFC is subject to the following State Implementation Plan ("SIP") rules:

- 15A NCAC 02D .0504 "Particulates from Wood Burning Indirect Heat Exchangers"
- 15A NCAC 02D .0512 "Particulates from Miscellaneous Wood Products Finishing Plants"
- 15A NCAC 02D .0516 "Sulfur Dioxide from Combustion Sources"
- 15A NCAC 02D .0521 "Control of Visible Emissions"
- 15A NCAC 02D .0524 "New Source Performance Standards" (40 CFR Part 60, Subpart Dc)
- 15A NCAC 02D .0530 "Prevention of Significant Deterioration"
- 15A NCAC 02D .0614 "Compliance Assurance Monitoring"
- 15A NCAC 02D .1111 "Maximum Achievable Control Technology" (40 CFR Part 63, Subparts JJ and DDDDD)
- 15A NCAC 02D .1806 "Control and Prohibition of Odorous Emissions" [State enforceable only]

MFC's requirements under each rule that applies to this facility are discussed below.

a. 02D .0504 "Particulates from Wood Burning Indirect Heat Exchangers"

This rule limits particulate emissions from boilers that burn only wood. The emission limit is a function of the woodburning capacity of the entire facility. The boiler B2 is subject to this rule.

In order to comply with the particulate emission limit, MFC has installed a multicyclone and electrostatic precipitator. MFC must operate, inspect, and maintain the control devices, and keep records of all maintenance and monitoring activities. The permit specifically requires that MFC monitor and maintain a minimum voltage and current in the electrostatic precipitator. Based on the most recent inspection report, the minimum values are 88 volts and 1.2 amps, respectively. MFC must submit reports of the maintenance and monitoring activities twice per year.

MFC performed an emission test (test reference number 2018-272ST) that showed B2 can comply with the particulate emission limit.

The existing permit also prohibits burning "chlorinated or non-chlorinated plastics and/or resins, or any wood waste which has been adulterated by finishes and/or coatings whose solid content contains compounds containing chlorine." This prohibition is not part of the rule but has been included in Title V

permits issued to MFC since at least 2002, which is when NCDAQ's electronic record of this facility begins.

Based on the most recent inspection report, MFC appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

b. 02D .0512 "Particulates from Miscellaneous Wood Products Finishing Plants"

This rule limits particulate emissions from all wood products finishing operations. Each of the woodworking, painting, and coating operations at this facility are subject to this rule.

In general, the rule only requires that the facility operate provide appropriate ductwork and control for particulate emissions. The rule does not have a specific emission limit.

In order to comply with the rule, MFC uses bagfilters, cyclones, and dry fabric filters throughout the facility. In order to demonstrate continued compliance, MFC performs regular inspections of the ductwork and control devices. Records of inspections must be kept and reported twice per year. For the woodwaste collection system, MFC also demonstrates compliance through CAM (see Section 7.g for a discussion of CAM requirements).

Based on the most recent inspection report, MFC appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

c. 02D .0516 "Sulfur Dioxide Emissions from Combustion Sources"

This rule limits sulfur dioxide ("SO₂") from fuel burning sources with no other specific SO₂ emission limits. This rule applies to each fuel burning source at this facility.

The only fuels burned at this facility are natural gas and wood. Based on the emission factors published in US EPA's publication AP-42, these fuels are expected to comply with 02D .0516 by default. Therefore, the permit does not require any monitoring, recordkeeping, or reporting to comply with this rule. MFC is expected to continue to comply with this rule.

d. 02D .0521 "Control of Visible Emissions"

This rule limits visible emissions ("VE") from emission sources with no other specific VE emission limit. For sources constructed after 1971, the opacity limit is 20% over any six-minute period, with the following exceptions: (1) No six-minute period exceeds 87 percent opacity; (2) No more than one six-minute period exceeds 20 percent opacity in any hour; and (3) No more than four six-minute periods exceed 20 percent opacity in any 24-hour period.

For the woodworking and furniture finishing operations, MFC demonstrates compliance with the VE limit with regular observations of the emission points around the facility. Records of observations must be kept and reported twice per year.

Because MFC operates a continuous opacity monitoring system ("COMS") for the boiler B2, compliance with the opacity limit for B2 is determined according to 02D .0521(g). For such systems, the exceptions to the 20% limit are different: (1) No more than four six-minute periods shall exceed the opacity standard in any one day; and (2) The percent of excess emissions in any calendar year quarter shall not exceed 0.8% of the total operating hours. Startups, shutdowns, malfunctions, and maintenance are excluded from these periods.

The existing permit omits requirements specific to 02D .0521(g). The new permit will be corrected to include these requirements. MFC will be required to keep records of COMS data and submit reports twice per year.

Based on the most recent inspection report, MFC is in compliance with this rule as it is written in the existing permit. Continued compliance with this rule will be determined with subsequent inspections and reports.

e. 02D .0524 "New Source Performance Standards" ("NSPS"; 40 CFR Part 60)

This rule incorporates the NSPS rules into North Carolina's SIP. The only NSPS rule that applies to this facility is Subpart Dc "Small Industrial-Commercial-Institutional Steam Generating Units".

Subpart Dc applies to all boilers constructed after 1989 with a heat input greater than 10 MMBtu/hr. The only such boiler at this facility is B2. For the purposes of this rule, B2 is considered a boiler that combusts wood, was constructed after February 28, 2005, and has a heat input capacity less than 30 MMBtu/hr. For such boilers, the only requirement is to keep a daily record of the amount of fuel fired. There are no reporting requirements.

Based on the most recent inspection report, MFC is in compliance with this rule. Continued compliance will be determined during subsequent inspections.

f. 02D .0530 "Prevention of Significant Deterioration" ("PSD"; 40 CFR Parts 52 and 70)

This facility is a major source for PSD due to VOC emissions. As a result of a PSD review², an annual VOC emission limit and Best Available Control Technology ("BACT") limits were included in the permit. BACT for this facility was determined to be limiting the VOC content of materials based on the type of application for those materials.

In order to demonstrate compliance, MFC keeps a record of material usage and VOC emissions for all PSD-subject activities. A summary report of the recordkeeping activities must be submitted twice per year.

Based on the most recent inspection report, MFC appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

g. 02D .0614 "Compliance Assurance Monitoring" ("CAM"; 40 CFR Part 64)

This rule incorporates the requirements of 40 CFR Part 64 into North Carolina's SIP. CAM applies to individual emission sources based on the following criteria:

- The source is equipped with a control device,
- The source being controlled is subject to a non-exempt emission standard (defined by 02D .0614(b)(1)),
- The control device is being used to comply with the emission standard, and
- The source being controlled has potential emissions of the pollutant subject to the emission standard greater than major source thresholds.

² For the PSD review of this facility, see application review for Title V permit 03238T15, issued January 28, 2002.

CAM applicability for this facility has been reviewed previously³. It has been determined that CAM only applies to the woodwaste collection system (ID No. WWCS1) and two of the associated bagfilters (ID Nos. BF2 and BF3). This determination has been made based on the potential emissions of PM10 from emission sources at this facility. No relevant changes have been made to the control devices at this facility.

The existing permit contains a CAM plan for the woodwaste collection system and the two filters. In order to assure compliance, MFC performs daily observations of the filters for any visible emissions. MFC must keep records of observations and submit summary reports twice per year. The CAM plan also requires that MFC re-examine CAM applicability if the bagfilters BF8, BF9, and/or BF10 are ever installed. According to the most recent inspection report, MFC has not installed these bagfilters.

The existing CAM plan refers to the opacity limit in 02D .0521 as a limit that requires CAM. This is an error, because opacity and VE do not have major source thresholds and therefore cannot trigger CAM requirements. References to 02D .0521 have been removed from the CAM plan in the new permit. In addition, the existing permit contains a lengthy justification for the CAM plan in the body of the permit. This justification does not contain any enforceable requirements, and therefore should not be included in the permit. For future reference, the CAM justification is included below:

"d. Justification.

- i. Background. The pollutant-specific emission unit is the wood dust system (ID No. WWCS1), which is used to collect and transfer the wood dust from the equipment in the plant to the dust silo. The equipment consists of saws, planers, sanders, etc. in the typical furniture manufacturing operation. The particular control devices subject to this condition are two fabric filters (ID Nos. BF2 and BF3).*
- ii. Rationale for Selection of Performance Indicators. Visible emissions was selected as the performance indicator because it is a good indicator of the proper operation and maintenance of the filter units. When the filter units are operating properly, there will not be any visible emissions in the exhaust outlet. Any increase in visible emissions indicates reduced performance of the filter units, therefore, the presence of visible emissions is used as a performance indicator.*
- iii. Rationale for Selection of Indicator Ranges. The selected indicator range is no visible emissions. When an excursion occurs, corrective action will be initiated, beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported. An indicator range of no visible emissions was selected because: (1) an increase in visible emissions is indicative of an increase in particulate emissions; and (2) a monitoring technique which does not require a Method 9 certified observer is desired. Although Reference Method 22 applies to fugitive sources, the visible/no visible emissions observation technique of RM-22 can be applied to ducted emissions; i.e., Method 22-like observations.
The selected QIP threshold for fabric filter visible emissions is five excursions in a 6-month reporting period. This level is 3 percent of the total visible emissions observations. If the QIP threshold is exceeded in a semiannual reporting period, a QIP will be developed and implemented."*

³ For the CAM review of boiler B2, see application review for Title V permit 03238T24, issued May 18, 2017. For all other sources, see the application review for permit 03238T19, issued March 20, 2008.

Based on the most recent inspection report, MFC appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

h. 02D .1111 "Maximum Achievable Control Technology" ("MACT"; 40 CFR Part 63)

This rule incorporates the MACT rules into North Carolina's SIP. For the purposes of MACT applicability, this facility is considered a major source of hazardous air pollutants ("HAPs"). By default, rules that apply to only area sources of HAPs do not apply to this facility. Ultimately, there only two MACT rules that apply to the activities at this facility.

1. Subpart JJ "Wood Furniture Manufacturing Operations"

This rule applies to wood furniture manufacturing operations that are also major sources of HAPs. All of the furniture production activities are subject to this rule. This does not include the miscellaneous woodworking and woodwaste storage activities.

The rule limits HAP emitted from various furniture manufacturing operations and provides several options for demonstrating compliance. MFC has chosen the "compliant coatings" and "facility averaging" options. In order to demonstrate compliance, MFC must keep records of materials used and show that materials meet the compliant coatings definition or that the overall material usage at the facility meets the facility averaging option. In addition, the rule requires good work practices and operator training for activities involving coatings.

MFC must keep records of material usage, calculations, operator training, and good work practice activities. MFC must submit a summary report of the recordkeeping activities twice per year.

Based on the most recent inspection report, MFC appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

2. Subpart DDDDD "Industrial, Commercial, and Institutional Boilers and Process Heaters"

This rule applies to boilers and process heaters located at major sources of HAPs. The only such source at this facility is the boiler B2.

For the purposes of this rule, B2 is classified as:

- New;
- Designed to burn biomass;
- Heat input greater than 10 million Btu per hour; and
- Equipped with an oxygen trim system.

Therefore, this boiler is subject to the following limits (items #1 and #8 in Table 1 to the Subpart):

Pollutant	Emission Limit
Hydrochloric Acid (HCl)	2.2E-02 pounds per MMBtu of heat input
Mercury (Hg)	8.0E-07 pounds per MMBtu of heat input
Carbon monoxide (CO)	460 ppm by volume on a dry basis corrected to 3 percent oxygen

Pollutant	Emission Limit
Filterable Particulate Matter (PM); or Total Suspended Metals (TSM)	3.0E-02 pounds per MMBtu of heat input; or 4.0E-03 pounds per MMBtu of heat input

In order to comply with these emission limits, MFC has installed a multicyclone in series with a dry electrostatic precipitator. MFC demonstrated initial compliance with the limits with an initial tune-up and stack testing⁴.

In the future, MFC must perform stack testing according to the schedule in §63.7515. Testing is required annually, but can be reduced in frequency based on the results of previous consecutive tests. Because this boiler uses an oxygen trim system, subsequent tune-ups are required every five years (item #1 in Table 3 to the Subpart). Because this boiler only burns a single fuel, no fuel analysis is required per §63.7510(a)(2)(i).

MFC must install a COMS on the boiler exhaust, limit boiler load based on the most recent performance test, and install an oxygen trim system (items #4.a, #7, and #8 in Table 4 to the Subpart). The permit will include the boiler load and measured oxygen content from the most recent test.

The rule specifies work practice requirements during periods of startup and shutdown. Based on the most recent inspection report, MFC follows "definition (2) of 'startup'". Therefore, MFC must comply with the work practice requirements in items #5 and 6 in Table 3 to the Subpart.

The rule requires that records of testing, tune-ups, monitoring, and maintenance be kept on-site and reported twice per year.

Based on the most recent inspection report, MFC appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

i. 02D .1806 "Control and Prohibition of Odorous Emissions" [State enforceable only]

This rule requires that the facility not operate the facility in such a way that contributes to odor complaints outside of the facility's boundary.

This rule has no specific compliance requirements. Based on the most recent inspection report, MFC appears to be in compliance with this rule. Continued compliance will be determined during subsequent inspections.

j. Nonapplicable Rules:

There are several SIP and Federal rules that could potentially apply to this modification, but ultimately do not.

⁴ See reports for test reference numbers 2017-357ST and 2018-272ST.

1. 02D .0900 "Volatile Organic Compounds" and 02D .1400 "Nitrogen Oxides" (a.k.a. "Reasonably Available Control Technology"; "RACT")

In general, RACT rules apply to areas currently considered as nonattainment for ozone (see 02D .0902(f) and 02D .1402(d)). Guilford County is not such an area. Therefore, no RACT rules apply to this facility.

2. 02D .1100 "Control of Toxic Air Pollutants" and 02Q .0711 "Emission Rates Requiring a Permit" [both state enforceable only]

Emission limits associated with 02D .1100 and 02Q .0711 have previously been removed from this permit as allowed by Session Law 2012-91⁵. Therefore, the permit does not contain a specific condition for these rules. The permit currently includes a permit shield for these rules, as allowed by 02Q .0512(a).

This permit renewal, part-2 significant modification, and 502(b)(10) change do not trigger a new review for emissions of toxic air pollutants.

3. 02D .2100 "Risk Management Program" (a.k.a. "Section 112(r) of the Clean Air Act")

This facility does not appear to store any material listed in 40 CFR 68.130 above its respective threshold. Therefore, this rule does not apply to this facility. In addition, this facility does not have any increased requirements under Section 112(r) of the Clean Air Act.

4. 02Q .0504 "Option for Obtaining Construction and Operation Permit"

This rule covers how a facility can apply for a 2-part significant modification. The existing permit includes a specific condition for this rule because MFC has previously applied for a 2-part significant modification. Now that MFC has completed the 2-part significant modification, references to this rule can be removed from the permit.

5. 40 CFR Part 63, Subpart GGGGG "Site Remediation"

This rule applies to site remediation activities at major sources of HAPs and are cleaning a remediation material defined in §63.7957. However, the rule also exempts remediation activities performed under the authority of the Comprehensive Environmental Response and Compensation Liability Act (see §63.7881(b)(2)). NCDAQ has previously determined that the remediation activities at this facility meet the requirements for this exemption⁶. Therefore, this rule does not apply to this facility.

8. Emissions Review

The change in emissions due to the boiler B2 replacing B1 has already been accounted for in the facility's potential emissions and PSD increment tracking. See Attachment 1 for emission calculations associated with this change.

⁵ See application review for Title V permit 03238T21, issued April 7, 2015.

⁶ See applicability determination #3445, issued July 23, 2019.

This permit renewal, significant modification, and 502(b)(10) modification are not expected to impact the facility's potential emissions.

For a summary of actual emissions from this facility, see the table on the first page of this document.

9. Compliance Status:

This facility was most recently inspected by Robert Barker on September 12, 2019. According to the inspection report, MFC appeared to be in compliance with the Title V permit at that time.

Notice of Violations ("NOVs") sent to MFC since the previous Title V renewal:

- September 29, 2015 NOV issued for exceeding emission limits during a stack test of the boiler B1. This boiler was later replaced by B2.
- July 20, 2018 NOV issued for exceeding emission limits during a stack test of the boiler B2. As a result, MFC made adjustments to the control devices based on manufacturer recommendations and re-tested. MFC was also fined \$4,296.
- August 24, 2018 NOV issued for violations of MACT Subpart DDDDD and the boiler B2. Issues included operating the boiler at a steam load above allowable levels and not properly operating the electrostatic precipitator. As a result, MFC was fined \$5,556.
- January 3, 2019 NOV issued for violations of 02D .0521 and the boiler B2. This NOV was later rescinded because NCDAQ had not considered 02D .0521(g) when determining compliance.
- February 4, 2019 NOV issued for violations of 02D .0521 and the boiler B2. This NOV was later rescinded because NCDAQ had not considered 02D .0521(g) when determining compliance.

10. Other Regulatory Concerns:

- Part-2 significant modifications require the applicant to submit an application fee. MFC submitted the appropriate application fee for application .19A. No application fee is required for Title V permit renewals or and 502(b)(10) applications.
- Significant modifications generally require a zoning consistency determination. MFC submitted the appropriate determination for application .19A. No such determination is required for 502(b)(10) changes or Title V permit renewals.
- Some permit applications require a Professional Engineer's seal. The appropriate portions of application .19A were signed and sealed by Wayne Watterson on March 1, 2019. No such seal was required for applications .15B and .19B.

11. Public Notice and EPA Review

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. Copies of the public notice shall be sent

to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also, pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above. Virginia is an affected State, and Forsyth County is an affected local program.

- The Public Notice and EPA Review periods began on XXX

12. Recommendations

Issue permit 03238T25.

DRAFT

Attachment 1 to Review of Applications 4100854.19A, 19B, and .15B
Marsh Furniture Company

Application Review for the 4100854.17A application

The .17A permit application was approved with the T24 permit
(four pages)

Review Engineer: Kevin Godwin	Comments / Recommendations:
Review Engineer's Signature: _____ [signed by Kevin Godwin on May 18, 2017]	Issue 03238/T24 Permit Issue Date: 05/18/2017 Permit Expiration Date: 03/31/2020

I. Introduction and Purpose of Application

- A. Marsh Furniture Company operates a wooden cabinet manufacturing facility at this High Point, Guilford County site. According to the application, manufacturing involves machining wood parts, finishing the parts with stain, sealer and topcoat, assembling the parts into cabinets, boxing and packaging, and shipping to customers.
- B. This permit action is add a new stoker type wood fuel-fired boiler (18.45 million Btu per hour heat input, ID No. B2) controlled by a multicyclone (ID No. FA2) in series with an electrostatic precipitator (ID No. ESP1) meant to replace existing wood fuel-fired boiler (19.2 million Btu per hour heat input, ID No. B1). The existing boiler is permitted to operate until the new boiler is operational. The new boiler is subject to 15A NCAC 02D .1111, MACT, Subpart DDDDD, and must be in compliance upon start-up.
- C. Because this modification does involve significant changes to existing monitoring, it is being processed as a significant modification under 15A NCAC 02Q .0516. The applicant has requested that the application be processed in accordance with 15A NCAC 02Q .0501(c)(2). This regulation allows the applicant to obtain a construction and operation permit following the procedures under Rule 02Q .0504 and filing a complete application within 12 months after commencing operation to modify the construction and operation permit to meet the Title V requirements. The existing boiler (ID No. B1) will be removed from the permit upon issuance of the Part II Permit.

II. Changes to Existing Air Permit

The following table provides a summary of changes made to the existing permit.

Page No.	Specific Condition No.	Changes
Cover Letter	Same	<ul style="list-style-type: none">Used current shell language, updated permit numbers, dates, etc.
Permit, page 1	Same	<ul style="list-style-type: none">Revised dates, permit numbers, etc. using current shell standards
7	Table of Emission Sources	<ul style="list-style-type: none">Included new boiler (ID No. B2) along with footnote pertaining to requirements under 15A NCAC 02Q .0501(c)(2).
25	2.1 E.	<ul style="list-style-type: none">Included new boiler (ID No. B2).
25	2.1 E.1.d.	<ul style="list-style-type: none">Included PM testing requirement under 15A NCAC 02D .0504.
25	2.1 E.1.e.	<ul style="list-style-type: none">Included monitoring requirement for multicyclone (ID No. FA2) and electrostatic precipitator (ID No. ESP1).
27	2.1 E.4.	<ul style="list-style-type: none">Included new condition referencing the requirements under 15A NCAC 02D .1111, MACT, Subpart DDDDD.

Page No.	Specific Condition No.	Changes
32	2.1 E.5.	<ul style="list-style-type: none">Included new condition referencing the requirements under 15A NCAC 02D .0524, NSPS, Subpart Dc.
33	2.1 E.6.	<ul style="list-style-type: none">Included requirements for 15A NCAC 02Q .0504: OPTION FOR OBTAINING CONSTRUCTION AND OPERATION PERMIT

III. Statement of Compliance

The facility was most recently inspected on August 15, 2016 by Mr. Robert Baker of the Winston-Salem Regional Office (WSRO). According to the inspection report dated August 16, 2016, the facility appeared to be operating in compliance with Air Quality standards and regulations at the time of this inspection.

The five-year compliance history is detailed in the report as follows:

Compliance History for the last five years

September 9, 2015 - Notice of Violation and Notice of Recommendation for Enforcement (NOV/NRE) for exceeding the emission limits for the total selected metals (TSM) and carbon monoxide (CO) during the stack test on May 28, 2015. In the facility's response letter, the facility stated that air intrusion into the boiler affected the CO readings. The detection of the TSM in excess of the MACT was apparently derived from excess lead. The facility proposed to perform another stack test in November 2015, which was never done. The facility then requested that the CAA 112(j) numerical emission limits for the wood fired boiler (B1) contained in Air Permit No. 03238T22 be changed. Specifically, the substitution of the 112(j) numerical emission limits for total suspended metals (TSM) and carbon dioxide (CO) with the emission limits contained in the 112(d) standard 40 CFR 63, Subpart DDDDD "NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters." The limits were updated in Air Permit No. 03238T23. The facility conducted another stack test on May 10, 2016 and the results were received by this office on June 27, 2016. The results are currently being reviewed by the DAQ-RCO Technical Services Section. The NOV/NRE will be resolved once the stack test results have been reviewed and found acceptable.

IV. Regulatory Review – Specific Emission Source Limitations

- A. 15A NCAC 02D .0504 "Particulates from Wood Burning Indirect Heat Exchangers" – This Rule applies to installations in which wood is burned for the primary purpose of producing heat or power by indirect heat transfer. Emissions of particulate matter from the combustion of wood shall not exceed the allowable emission rate calculated by the equation $E = 1.1698 (Q \text{ to the } -0.2230 \text{ power})$. E = allowable emission limit for particulate matter in lb/million Btu. Q = Maximum heat input in million Btu/hour. Based on a facility-wide wood fuel heat input rate of 18.45 million Btu per hour, E calculates to 0.61 lb/million Btu. Based on AP-42 emission factors Table 1.6-1, uncontrolled PM emissions are calculated to be 0.4 lb/million Btu or 7.38 lb/hr. Controlled PM emissions are reported to be 0.54 lb/hr.

PM emissions are controlled by a multicyclone in series with an electrostatic precipitator. According to the application, the multicyclone will handle 7264 acfm volumetric flow and provide 97% PM control efficiency, 70% PM-10 control efficiency, and 26% PM-2.5 control efficiency. The ESP can handle up to 8500 acfm volumetric flow and provide 91% PM control efficiency. PM testing will be required within 1-year of the boiler becoming operational. Control device monitoring, recordkeeping, and reporting are required. Compliance is expected.

- B. 15A NCAC 02D .0516 "Sulfur Dioxide from Combustion Sources" – This regulation limits sulfur dioxide emissions from any combustion source to 2.3 pounds/million Btu. SO₂ emissions from wood combustion are calculated based on AP-42 factors to be 0.47 lb/million Btu. Compliance is indicated. No monitoring is required.

- C. 15A NCAC 02D .0521 “Control of Visible Emissions” – This regulation sets a visible emissions standard and applies to the new boiler. For sources that began operation after July 1, 1971, the visible emission standard is 20% opacity. A condition is included in the permit requiring that the Permittee establish ‘normal’ emissions within the first 30 days following permit effective date. Once a day, the Permittee shall observe the emission points of the boiler for any visible emissions above normal. If visible emissions from this source are observed to be above normal, the Permittee shall either:
- take appropriate action to correct the above-normal emissions as soon as practicable and within the monitoring period and record the action taken as provided in the recordkeeping requirements below, or
 - demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 02D .2610 (Method 9) for 12 minutes is below the limit given above.

Recordkeeping and reporting are required.

- D. 15A NCAC 02D .0524 “New Source Performance Standards” – The new boiler is subject to 40 CFR 60, Subpart Dc. The rule requires initial notification of boiler start-up. Applicable requirements for the boiler are: 60.48c(a)(1) inclusion of the design heat input rating and the types of fuels to be combusted, and 60.48c(g) requiring the facility to record and maintain the amounts of each fuel used during each calendar month. A new condition is placed in the permit referencing the facility’s requirements under NSPS.
- E. 15A NCAC 02D .1111 “Maximum Achievable Control Technology” – The new boiler is subject to 40 CFR 63, Subpart DDDDD. Compliance with Subpart DDDDD is required upon start-up. The boiler is a stoker-type designed to burn kiln dried biomass/bio-based solids. A condition referencing the requirements under Subpart DDDDD for the boiler is included in the revised permit.

V. Regulatory Review – Multiple Emission Source Limitations

- A. 15A NCAC 02D .0530 “Prevention of Significant Deterioration” – This facility is a PSD major stationary source. Emissions increases from the project must be compared to the PSD significant emission rate (SER).

For new and existing units, emissions increases are defined as the difference between the potential-to-emit (PTE) following completion of the project and the baseline actual emissions (BAE) before the project (baseline actual-to-potential). The baseline actual emissions for new units is zero.

Baseline Actual Emissions (BAE)

For existing units (ID No. B1) BAE is defined as “the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner/operator within the five-year period immediately preceding the date that a complete application is received by the Division for a permit required under this Rule.” For this project, 2014 and 2015 were selected as the baseline period. BAE were calculated using DAQ Woodwaste Combustion Emissions Calculator spreadsheet.

Potential to Emit (PTE)

For the new boiler PTE was calculated using DAQ spreadsheet.

The following table shows the difference between PTE and BAE for the proposed project is less than PSD SER for each pollutant.

Table – 1 PSD Evaluation

	PM (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	NOx (tpy)	CO (tpy)	VOC (tpy)	SO2 (tpy)	Lead (tpy)
PTE	0.09	0.70	1.58	39.60	48.49	1.37	2.02	0.0039
BAE	9.75	8.83	5.44	15.07	18.46	0.52	0.77	0.0015
PTE – BAE	-9.66	-8.13	-3.86	24.53	30.03	0.85	1.25	0.0023
SER	25	15	10	40	100	40	40	0.7

The DAQ reviewed the emissions factors and calculations and agrees that the proposed change will not result in an increase in the facility's production ability beyond the currently permitted rates. There will be no increase in actual production or emissions at the facility. A PSD review is not required.

- B. 15A NCAC 02D .1806 "Control and Prohibition of Odorous Emissions" – This regulation applies to facility-wide sources. The Rule requires facilities to implement best management practices or install and operate odor control equipment sufficient to prevent odorous emissions beyond the facility boundary. Compliance is expected.
- C. 15A NCAC 02Q .0700 "Toxic Air Pollutant Procedures" – Pursuant to 15A NCAC 02Q .0711, a permit to emit toxic air pollutants (TAP) shall be required for any facility where one or more emission release points are obstructed or non-vertically oriented whose actual rate of emissions from all sources are greater than any one of the listed TAP permitting emissions rates. The replacement boiler is not expected to result in an increase in TAP emissions. No further evaluation is necessary.
- D. 15A NCAC 02D .0614 "Compliance Assurance Monitoring" – The requirements of this Rule do not apply to emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the federal Clean Air Act. The boiler is subject to 112 standards and is thus exempt from CAM.

VI. Other Regulatory Requirements

- An application fee of \$929.00 is required and was received by DAQ on February 7, 2017.
- The appropriate number of application copies was received on January 31, 2017.
- A Professional Engineer's Seal is required for this application and was included (ref. Wayne H. Watterson, P.E. Seal # 19243).
- Receipt of the request for a zoning consistency determination was acknowledged by City of High Point Planning and Development Inspection Services., on January 27, 2017. The proposed operation is consistent with applicable zoning ordinances.
- Public notice is not required for this 1st step of a 2-step process allowed under 15A NCAC 02Q .0501(c)(2).
- IBEAM Title V Equipment Editor (TVEE) update was verified on May 15, 2017.
- According to the application, the facility does not handle any of the substances subject to 112(r) at quantities greater than the applicability threshold.
- The application was signed by Mr. Edwin Underwood, COO, on January 27, 2017.

VII. Recommendations

This permit application has been reviewed by DAQ to determine compliance with all procedures and requirements. The DAQ has determined that this facility is expected to achieve compliance as specified in the permit with all applicable requirements. The applicant and the WSRO were provided a draft permit on May 1, 2017. The WSRO responded on May 4, 2017 with minor comments. The applicant responded on May 4, 2017 with minor comments. All comments have been addressed in this review. The DAQ recommends the issuance of permit 03238T24.

Attachment 2 to Review of Applications 4100854.19A, 19B, and .15B
Marsh Furniture Company

Summary of Comments on Initial Draft of Permit 03238T25

- Robert Barker, by email on February 18, 2020

1. Should an internal inspection for the electrostatic precipitator be included in Section 2.1 D.1.d.ii?

Response: The permit already requires inspection of "system ductwork and material collection unit", which should cover the ESP.

2. MFC has requested a variance regarding MACT Subpart DDDDD and the length of startup time allowed.

Response: I asked Gary Saunders (head of Stationary Source Compliance Branch) about this issue, but received no response. No decision regarding this issue appears to have been made at this time.

- Mark Cuilla, by email on February 21, 2020

1. The email pointed out typos in the draft permit and application review.

Response: The indicated issues have been fixed.

2. The "Purpose of Application" section of the application review should included more details on each application.

Response: Done.

- Bruce Braswell, by email on March 4, 2020

The following sources are being relocated to NFLS4: SB13, SB-1, and SB-2. This plan has already been presented to WSRO on January 30, 2020.

Response: After confirming with WSRO, I have implemented this change.